



# Science News-Letter

*The Weekly Summary of Current Science*

Reg. U. S. Pat. Off.

A Science Service Publication

Edited by Watson Davis

Vol. XII No. 333



10¢ a copy \$5 a year

August 27, 1927

ENTOMOLOGY

## Science Seeks Relief for the Stung



"The gobble—uns 'll git you ef you don't watch out!" Perils that lurk in the paths of the unwary

By MARJORIE MACDILL

The annual insect warfare is in full swing.

The buzzing brigades are getting in their usual dirty work while perspiring campers slap lumps on the back of their collective necks, and other parts of their anatomies, and say futile cuss words.

Swollen itchy casualties limp back to the comparative peace of traffic jams and subway crowds after harassed excursions into the wilds, saying "Never again," meaning till next time.

Sunburn, poison ivy and bugs are the rocks that wreck vacations, and

the greatest of these is—bugs. A hat will keep off the sun, poison ivy is rooted and can't move, but our six-footed friends we have always with us.

### Insect Venoms Classified

Scientists have been so busy laying plans of Hunnish warfare on the corn borer and the cotton boll weevil that make the poor farmer pay and pay, not to mention the malarial mosquito and tse-tse fly and such pleasant mannered insects as carry actual death in their bite, that they have paid scant attention to those that merely bore, saw, puncture, carve and otherwise mutilate

their victims. This oversight is gradually being remedied, however, for some humane individuals among the men of medicine and entomology have worked out a few remedial measures that enable any witless wight to patch up his wounds and return from a week-end in the country with a reasonably whole skin.

The venoms which confer on a very small insect the power to make creatures hundreds of times larger than himself so exceedingly uncomfortable may have one or several effects. Dr. A. C. Roxburgh, a skin specialist of London, one of those

(Just turn the page)

# INDEX TO THIS ISSUE

Aberration Equations	141	Codling Moth and Climate	141	Kofoed, Charles Atwood	131	Radio-Communication	141
Adults Learn Better	137	Dalton, John	143	Leather Shoes	141	Reptiles of the World	141
Airplanes, Model	133	Davenport, Eugene	141	Lhasa	139	Rookery, Breaking up the	139
Anet, Claude	141	David-Neel, Alexandra	139	Lizards in Paraffin	143	Roxburgh, Dr. A. C.	129
Anniversaries of Science	141	De Lamar Lectures	141	Local Immunization	141	Shelford, Victor E.	141
Atomic Theory	143	Ditmars, Raymond L.	141	Long-Range Weather Forecasts	131	Social Basis of Consciousness	141
Aztec "Jade" Source	139	Drinking Water Abroad	137	Magnets, How to Tell	143	Soil Mineralogy	141
Bee Stings, Remedies for	129	Eagle, Golden	137	Manual of Tests	141	Spider Bites, Serum for	129
Bent, Arthur Cleveland	141	Electric Lighting Service, First	143	Marsh Birds	141	Spooner, C. S.	141
Beardka, A.	141	End of a World	143	Mathew, W. D.	137	Stings, Insect	129
Boughers, Henry E.	137	Farm	141	Mena, Ramon	139	Tarantulas not Deadly	129
Brown, William	141	Forbidden City	139	Mendel a Darwinian	143	Tests, Manual of	141
Browner, A. F., and others	141	Fossil Footprints	141	Metal Fits, Comparison of	141	Thorndike, E. L.	137
Burrow, O. F.	141	Fullmer, Irvin H.	141	Model Airplanes	133	Thornton, William M.	141
Burt, Frederick A.	141	Gardener, I. C.	141	Monkeys, Worse than	137	Titanium	141
Cancer Control	141	Guy-Lussac, Joseph Louis	143	Mosquito Stings, Remedies for	129	Waggaman, Wm. H. and H.	141
Catalase in Codling Moth	141	Gilmore, Charles W.	139	"Murphy's Winter"	131	W. Easterwood	141
Caterpillar Hairs Poisonous	129	Gregg, F. M.	139	Nature Ramblings	139	Water Available Abroad	137
Cats Live in Gray World	139	Haas, Arthur	141	New Star in Milky Way	131	Williams, Roger J.	141
Cerda, De La	139	Health Record, in 1927	131	Nobel, G. K.	143	Worse than Monkeys	137
Chiggers, Preventives and Cures	129	Insect Stings, Remedies for	129	Nova in Milky Way	131	"Year without Summer"	131
		Isostasy	141	Oil Overproduction	137	Yellowstone Gets Eagle	137
		Jade, Aztec Source	141	Organic Chemistry, Intro.	141	Science News-Letter, Aug. 27, 1927	
		Jadeite, Aztec	139	Paraffin, Animals Preserved in	143		
		Jaekel, M. E.	143	Phosphoric Acids, Phosphates	141		

## Relief for the Stung

(Continued from page 129)

benevolent fellows just mentioned who have made a study of insect bites, says that the poison may affect the nerves or the blood, may produce merely local inflammation or profound and sometimes fatal shock.

Most of the commoner insect annoyances affect the blood. Of these the mosquito is a familiar example. This is the time of year when his hum is heard throughout the land and the cries of his victims arise from afar. Scientifically speaking we should perhaps say "her," for the females do most of the biting.

## How the Mosquito Does It

It used to be thought that the well-known result from a puncture of Mother Mosquito's proboscis was merely the effect of an injection of mosquito saliva into the alien fluid, human blood. The irritating agent has been found, however, not to be the saliva but an enzyme in a kind of yeast always present in the insect's alimentary canal. If one had the fortitude to wait patiently for the mosquito to finish its meal, scientists tell us, most of the yeast cells would be sucked back again out of the wound. The occasional deaths from mosquito bites are thought to arise from the insect's having temporarily harbored virulent streptococci as well as the normal yeast cells. Horse-fly bites are often infected in this way, and there is a record of a case where anthrax was inoculated by the bite of one of these insects.

Mosquitoes can be kept off more or less by smoke from fires or tobacco. The odoriferous oil of citronella smeared frequently over the exposed parts of one's person likewise helps. Once they have done their worst to you, rubbing the punctures with a wet cake of soap or weak ammonia will alleviate the itching. If the bite shows any signs of infection it

is wise to forestall serious consequences by dabbing on any reliable germicidal solution. If bad infection does show up, a doctor, of course, should be consulted immediately.

## How to Remove Stings

When one is getting stung by a bee is not a propitious time to make accurate observations, but it is nevertheless a great help if there is a clue to the identity of the offender. Chemically the poison of a bee is just the opposite of that of a wasp and should be treated with different remedies. The bee sting is acid and should therefore have some weak alkaline preparation like the wet soap or weak ammonia recommended for mosquito bites. The wasp's sting, on the other hand, is alkaline and should be treated with applications of vinegar.

The technique of removing the sting of a bee or wasp from a wound is very important. The sting with the poison sacs that are attached to it is usually left behind by the insect as a memento of his attentions. If one follows the natural instinct and pulls the sting out with the fingers or with forceps, the poison sacs are squeezed and more poison is forced into the wound. The preferred way, the experts tell us, is to lift the sting out carefully with the blade of a knife so that the sacs are left intact.

Thousands of bees have been dissected and their poison analyzed by scientists to find out its exact composition. Formic acid is the main constituent, accompanied by minute amounts of complex organic compounds. The pure poison placed on uninjured skin, one investigator found would produce absolutely no injurious effect. The slightest break in the surface of the skin or a needle puncture through a drop of the poison caused the typical reaction of a sting. Some people are much

(Turn to page 135)



SCIENCE NEWS-LETTER, The Weekly Summary of Current Science. Published by Science Service, Inc., the Institution for the Popularization of Science organized under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science.

Publication Office, 1918 Harford Ave., Baltimore, Md. Editorial and Executive Office, 21st and B Sts., N. W., Washington, D. C. Address all communications to Washington, D. C.

Entered as second class matter October 1, 1926, at the postoffice at Baltimore, Md., under the act of March 3, 1879. Established in mimeograph form March 13, 1922. Title registered as trade-mark, U. S. Patent Office.

Subscription rate—\$5.00 a year postpaid. 10 cents a copy. Ten or more copies to same address, 6 cents a copy. Special reduced subscription rates are available to members of the American Association for the Advancement of Science.

Advertising rates furnished on application.

Copyright, 1927, by Science Service, Inc. Reproduction of any portion of the SCIENCE NEWS-LETTER is strictly prohibited since it is distributed for personal, school, club or library use only. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service, details and samples of which will be gladly sent on request.

Staff of Science Service—Director, Edwin E. Slosson; Managing Editor, Watson Davis; Staff Writers, Frank Thone, James Stokley, Emily C. Davis, Marjorie MacDill, Gladys Moon Jones; Sales and Advertising Manager, Hallie Jenkins.

Board of Trustees of Science Service—Representing the American Association for the Advancement of Science, J. McKeen Cattell, Treasurer, Editor, Science, Garrison, N. Y.; D. T. MacDougal, Director, Desert Laboratory, Tucson, Ariz.; M. I. Pupin, Professor of Electromechanics, Columbia University, New York City. Representing the National Academy of Sciences, John C. Merriam, President, Carnegie Institution of Washington; R. A. Millikan, Director, Norman Bridge Laboratory of Physics, California Institute of Technology, Pasadena, Calif.; Dr. David White, Chairman of the Division of Geology and Geography, National Research Council; Representing National Research Council, Vernon K. Klogg, Vice-President and Chairman of Executive Committee, Permanent Secretary, National Research Council, Washington, D. C.; C. G. Abbot, Director, Astro-Physical Observatory, Smithsonian Institution, Washington, D. C.; Victor C. Vaughan, Professor Emeritus of Hygiene, University of Michigan. Representing Journalism Profession, John H. Finley, Associate Editor, New York Times; Mark Sullivan, Writer, Washington, D. C.; Marlen E. Pew, Editor of Editor and Publisher, New York City; Representing W. Scripps Estate, W. E. Ritter, President, University of California; Robert P. Scripps, Scripps Howard Newspapers, West Chester, Ohio; Thomas L. Sidlo, Cleveland, Ohio.



## HYGIENE

## 1927 Has Best Health Record

So far 1927 has been an exceptionally healthy year, judging by figures just issued by the Metropolitan Life Insurance Company.

Fewer people have died in the first half of this year in the representative slice of the population included among the company's policy holders than during the corresponding period of any previous year, the statisticians' figures show. The white death rate for the six months was 8.6 as compared with 9.7 for the first half of 1926. The colored mortality figures, though higher than those for whites, also showed a decided improvement.

The nearest approach to the present figure occurred in 1921, when the rate for the first six months was 8.7. The statisticians point out, however, that the gain made by 1927 is greater than appears from mere comparison of figures, since the company has recently adopted the policy of insuring infants under one year of age, the period during which susceptibility to disease is greatest. Consequently the gain in lives of 1927 is considered a most encouraging indication of health conditions in the light of the fact that some 492,000 infants are included in the calculations.

The outstanding feature of the year's health record to date is the big drop in deaths from tuberculosis. The season of the year when the most deaths from tuberculosis occur is past, and it is hoped that 1927 will show a new low water mark for deaths from this disease.

Mortality from influenza and pneumonia were lower than they have been in several years. While the typhoid rate rose, due probably to the outbreak in Montreal, there has not as yet been any notable increase from conditions arising from the Mississippi flood. Measles, scarlet fever, and whooping cough have claimed fewer victims, but diphtheria has made a slight gain. The cancer situation is unimproved and shows a slight increase in the number of deaths among whites and a bigger gain among colored people.

In spite of the generally hopeful conditions with respect to disease, the record for violent deaths is high. One fourth of all the accidental deaths were automobile fatalities, while the drownings registered a ten per cent. gain among whites and actually doubled among negroes.

## BIOLOGY



CHARLES ATWOOD KOFOID

## Premier Protistologist

When the news was published last week that Prof. Kofoid had been elected to the presidency of the Pacific Division of the American Association for the Advancement of Science, biologists generally concurred in the opinion that the action of his coast colleagues was highly appropriate. Prof. Kofoid's reputation is more than sectional, more than national, as an indefatigable worker, a prolific publisher and a front-rank teacher in the difficult field of the minute acellular life that swarms in ocean and stream, and all too often in our afflicted insides. He drives his students as hard as he does himself—they sometimes complain that he half kills them with work. But he makes good zoologists out of them.

Charles Atwood Kofoid was born in Illinois in 1865. Like many another scientist who has made his mark in the coast states, he first attended a middle-western college (Oberlin), and then worked out his doctorate at Harvard. He reached California in 1900, and has been Professor of Zoology at Berkeley since 1910. His multifold activities have taken him all over the world, first as a student of marine protista and lately in the more immediately practical field of parasitic protozoa. He assists in the direction of several research activities away from the university campus, and edits or helps to edit a whole string of scientific journals. He seems to be able to multiply himself kinetically as his pet protozoa multiply themselves morphologically.

## ASTRONOMY

## "New" Star in Milky Way

A "new" star, flashing out from previous obscurity, has just been located in the Milky Way, according to Dr. Harlow Shapley, director of the Harvard College Observatory. The discovery of a strange celestial object was made by Dr. Max Wolf, of the observatory at Heidelberg University in Germany. Photographs made at the Harvard Observatory have confirmed the fact that it is really a "nova" or "new" star.

However, though the discovery has just been made, the new star might have been detected several months ago. It first appeared sometime between June 8 and June 21, and was photographed on plates made at the Harvard Observatory during that period. As it is in a region of the sky where thousands of stars can be photographed in a single exposure, it is not surprising that its unusual character was not noted at the time. Plates made before June 8 showed no record of it, though they were capable of showing stars as faint as the sixteenth magnitude. From such an exceedingly faint object, it quickly rose to the eighth magnitude, too faint to be perceived by the unaided eye, but visible in a small telescope.

Now its light is on the wane, and it is of the ninth magnitude. An effort is being made to have American astronomers observe it, to measure its variations in light before it gets too faint to be readily observed.

(Just turn the page)

## METEOROLOGY

## July Weather—and Murphy

July, 1927, passed and still the American farmer is cheerful. Most of the great staple crops of this continent are flourishing. Wheat will be a bumper crop. Corn has made rapid recovery from the effects of adverse conditions last spring. The weather of the past month was in no way exceptional or remarkable.

The unofficial prognosticator who threatened us with devastating cold waves in July took a long shot. The odds were a hundred to one against him, but he might have hit the mark. Such things have happened. There was the case of Murphy.

In England, after the lapse of nearly a century, they still talk of "Murphy's Winter." Daniel Murphy published a "Weather Almanac," in which, among a number of vague and haphazard prophecies, he declared that the lowest temperature of 1838 would be experienced on

(Just turn the page)

**"New" Star for Milky Way***(Continued from page 131)*

Photographs of its spectrum will also be made.

Astronomically, the position of the nova is given as 18 hours and 52 minutes right ascension, and 3 degrees 25 minutes south declination. This is in the constellation of Antinous, a group visible in the southern sky in late August evenings. It is just below and to the west of the bright star Altair, in the Eagle, which towards the end of August is directly south at about 8:00 p. m.

A nova is really the explosion of a star, and is the most vast of all known physical catastrophes. But despite the violence, the stars that are affected seem to be pretty much the same after the outbreak as before. Though they are not all bright enough to be observed, it is estimated that ten novae occur in our stellar system in a year. This precludes the possibility of one theory that has been suggested for their origin, that they are caused by collision between two stars. The stars are so sparsely scattered in space that such a collision would be millions of times rarer.

The tremendous energy which is liberated is now believed to be due to a breaking up of the atoms of which the star is made. Some internal condition might start it, or some collision with a very small body in space might act as the trigger to set it off, according to astronomers' ideas.

Science News-Letter, August 27, 1927

**July Weather—and Murphy***(Continued from page 131)*

January 20. This prediction was verified in the fullest measure. January 20 was the coldest day England had known for generations. The prophet became famous overnight. People flocked to the booksellers to buy copies of his almanac. The edition was soon exhausted and this work actually underwent more than fifty reprintings to satisfy public demand.

Meteorologists have since compared the daily predictions in Murphy's almanac for 1838 with the weather that prevailed day by day during that year in London. The announcements for 197 days were decidedly wrong. The others were wholly or partly right, but were mostly as indefinite and elastic as almanac weather predictions are wont to be. One lucky guess made the author immortal, and, incidentally, rich.

Science News-Letter, August 27, 1927

# The B N A

Arranged as an Outline of

## Regional and Systematic Anatomy

*A Contribution to the Science and Teaching of Anatomy*

BY

**Victor E. Emmel**

*Professor of Anatomy, College of Medicine, University of Illinois  
Laboratory Guest at The Wistar Institute of Anatomy and Biology*

### REVISED SECOND EDITION

The Basle Anatomical Nomenclature (the B N A) has been pre-eminently successful in the elimination of approximately 45,000 unnecessary synonyms for the macroscopic structures of the human body, and has consequently become an international anatomic language.

This list of some 5,000 terms, intended for common use in the medical schools, was arranged on the basis of systematic human anatomy.

It appears obvious, however, that, from the standpoint of practical anatomy, a regional arrangement of these terms in conjunction with their systematic tabulation would greatly increase the usefulness of the B N A.

With this objective in mind, the present systematic B N A has been expanded to include a correlated regional arrangement of anatomical terms—an arrangement based upon the sequence in which the structures indicated by these terms may be exposed and demonstrated to the naked eye in actual dissection—thus securing a direct association of the term with the visualization of the structure to which it refers.

Although a minimum encroachment upon individual initiative is evaluated as a dominant objective to be sought, concise statements are given for the more difficult incisions and dissections involved in the demonstration of the structures listed. The order in which the regions are dealt with is based upon a sequence which facilitates observation of those structural relationships of greatest practical significance. The work consequently constitutes a basis for a direct correlation of anatomical terminology and structure in the practical study of the cadaver and presents a résumé of regional and systematic anatomy for anatomical and clinical reference.

This book of about 250 pages, illustrated with twelve plates and figures in delineation of surface anatomy and surface projections of the skeleton, will be ready September 15, 1927. Price, \$3.50, bound in cloth.

ADDRESS

**THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY**  
Thirty-sixth Street and Woodland Avenue :: Philadelphia, Pa.



# Building and Flying Model Airplanes

## Making the Elevator and Assembling

This is the fourth of a series of articles by Paul Edward Garber, telling how to make model airplanes. Mr. Garber is in charge of Aeronautics at the Smithsonian Institution.

The construction of model airplane "S-S-1" is now complete except for the small wing or elevator. The elevator is made in the same manner as the wing which has previously been described.

The following material is necessary:

- 2 pine sticks, 8"x $\frac{1}{8}$ "x1/16"
- 27 $\frac{1}{2}$ " of No. 16 aluminum wire
- Remnant of silk or paper from yesterday
- Thread, needle and pins
- Glue and wing solution
- 3 rubber bands 3" long
- 1 block of pine wood 1 $\frac{1}{2}$ "x $\frac{1}{4}$ " square

The same directions that were used for making the wing may be followed in making the elevator. But after the center of the sticks is found, bend each stick slightly upward. This bending is done by either heating the center above a candle flame and bending it as the wood fibres are felt to give, or by soaking these two sticks about half an hour in boiling water, after which they are placed in a form made by hammering nails into a piece of wood so as to make a "V" shaped fence against which the sticks are held by other nails. They should be left in this frame overnight to dry, after which they will permanently retain the angle.

The idea of having the elevator bent upward is to impart steadiness to the model's flight. This angle is known as "dihedral." The front view of the elevator shows the amount of dihedral necessary. It is such that the tips are one inch above level. The ribs are placed 1 $\frac{1}{4}$ " apart. The methods of bracing and covering are the same as were used for the wing.

At the bottom of the drawing is shown a side view of the model when assembled. It will be observed that the wing is placed near the back, with the greatest curve of the wing toward the point of the model. The elevator is placed near the nose with the edge which is near the greatest curve resting on the small block of wood. The idea of this is to raise it to secure proper lift.

The wing and elevator are held in place with rubber bands. To use these for fastening the wing the rubber bands are placed under the



long sticks of the frame and the loops each side of the stick are held open above the stick while the wing is slipped underneath. It is carefully centered and lined up true. The elevator is fastened in a similar manner, but the rubber band is looped under the two sticks, as they are so close together near the point. The model is now ready to be flown.

## Flying the Model

Model airplane "S-S-1" is now ready to fly.

If you have carried out carefully the directions given in the previous articles, you will find that the model is capable of flying at least 500 feet, probably more.

Select a large field for trying it out. The field should be free of trees or other obstructions, and should be level. Preferably the ground should be covered with long grass to cushion the landings. It is suggested that the wings be removed from the model while carrying it from your home to the field to prevent damage to it.

The winding of the model is somewhat of a long job, inasmuch as about 600 turns are to be stored in each set of rubbers, therefore if you have a geared hand drill make a hook with a straight shank, fit it in the drill chuck, and take this tool along with you to the field for winding. When you get to the field, get away from any bordering trees and prepare to fly the model with the

(Just turn the page)

## Unique Mound Exhibit

A private museum of Indian remains in which the exhibits were arranged by the ancient mound builders themselves, is the unique possession of Don F. Dickson of Lewistown, Ill.

Some time ago Mr. Dickson began excavations on an Indian mound on his father's farm near here. He found a large number of skeletons, including several of infants, together with a great quantity of utensils, tools and weapons of stone, bone and pottery. Instead of removing his finds and placing them in glass cases, he left them exactly as they had been placed centuries ago by the Indians, removing the last traces of dirt with a teaspoon and a fine brush. He has erected a temporary shelter over his excavation, with a walk and a railing inside, so that visitors can inspect the evidences of an ancient American culture under conditions that are usually possible only to archaeologists.

One of the most tragically appealing burial groups consists of the skeletons of a man and a woman, lying very close together, with the bones of a baby between them. Around them are their implements and weapons, and the food-pots that contained provisions for the last long journey of the little family.

Prof. W. K. Moorehead of Phillips Academy, Andover, Mass., who has been conducting extensive mound explorations in southern Illinois, has inspected Mr. Dickson's work, and reports that he is much impressed with the discoveries. He is now endeavoring to raise funds for the investigation of similar mounds in the neighborhood, and possibly also to give the unique exhibit already prepared a permanent housing.

Prof. Moorehead states that the only thing of this kind elsewhere in the world is a housed-over excavation at Mentone, France, showing the culture of the Stone Age in Europe. Even this famous exhibit, however, does not match Mr. Dickson's in point of size, for it contains only eight burials, as against more than forty in the American mound.

Science News-Letter, August 27, 1927

The cardinal principle of science is that we know nothing until we can find it out. There is no authority that can give answers in advance to any question of fact.

—David Starr Jordan.

Science News-Letter, August 27, 1927

## News-Letter Features

Born over four years ago of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the *SCIENCE NEWS-LETTER* has since proved interesting to laymen, scientists, students, teachers and children.

Into the pages of the *NEWS-LETTER* are fed the cream of *Science Service's* output directed at the newspapers of the world. To this is added material especially prepared.

Turn the pages and note:

It is a *separable magazine*. You can clip or tear out any article without losing or damaging another article on the other side.

Each article is automatically *indexed* by the key word printed above its heading. Articles can thus be filed easily into any system of classification.

Each article is automatically *dated* by its last line.

The current *news* of science, reported for *Science Service* by its own staff and correspondents throughout the world is presented and commented upon in each issue.

Books are *reviewed in brief* as they are received from the publishers.

*The classics of science* and striking passages from current books, addresses and periodicals are carefully selected and published.

Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great outdoors.

*Photographs* aid in the telling of the week's science.

Great care is taken to keep its editorial content not only *interesting* but *accurate* as to fact and implication.

The *Science News-Letter* is copyrighted and is sold with the understanding that it is for personal, school, club or library use only. Publication of any portion is strictly prohibited.

A shortage of good work horses and mules is predicted.

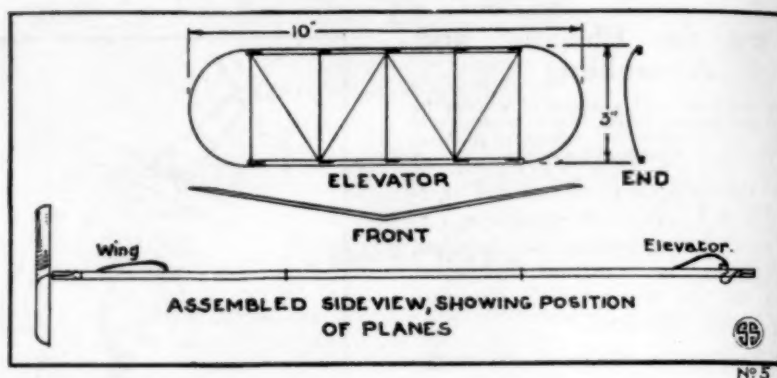
The American antelope is the only hollow-horned animal that sheds its horns every year.

The oldest known record of a naval battle is on the wall of an Egyptian temple, at ancient Thebes.

The Hawaiian Islands are tops of mountains that stand 30,000 feet from the floor of the Pacific.

## Building and Flying Model Airplanes

(Continued from page 133)



wind; therefore go to the edge of the field from which the wind is blowing.

Assemble the model in the manner explained, and launch it for several preliminary glides before winding it in order to balance it. If the model dives down too rapidly, move the elevator slightly forward and try another glide. If the model climbs and stalls too much, move the elevator back or cut a thin slice off the elevator block. The large wing may also be moved correspondingly forward or backward to balance the model. Continue adjustments until the model glides forward nicely. If you are not equipped with a geared winder such as a hand drill, wind each propeller 600 times, by turning it with your finger, rotating the left hand one in the direction the clock goes, and the right hand one the other way. If you have a winder allow a friend to hold the propellers and support the model horizontally while you go to the nose of the model, unhook the "S" hook from the nose hook and by placing it on the winder hook wind the rubber. Do this enough to store 600 turns in the rubbers, taking into account the geared advantage of the winder, and making sure that you are causing the propellers to turn in their proper directions.

When the propellers are wound, face the wind, hold the model over the head with a hand on each propeller, and thrust the model forward, in the same manner as is illustrated in the drawing. The model is designed to fly with the small wing in front. If the model dives or climbs too rapidly make the same adjustments as for the glides. If it turns, slide the wing sideways. If the model is properly adjusted it will climb rapidly to get altitude, then turn a half circle and fly with the wind.

If the model does not fly satisfac-

torily after all of the foregoing has been observed, two faults may be holding it down; either it is too heavy or it is underpowered. The only way to correct overweight is to go over the model carefully, eliminating every extra bit of weight. If the model is underpowered, it should be wound more before launching, or more rubber must be used, or the rubber now on the model must be strung tighter and formed into more strands.

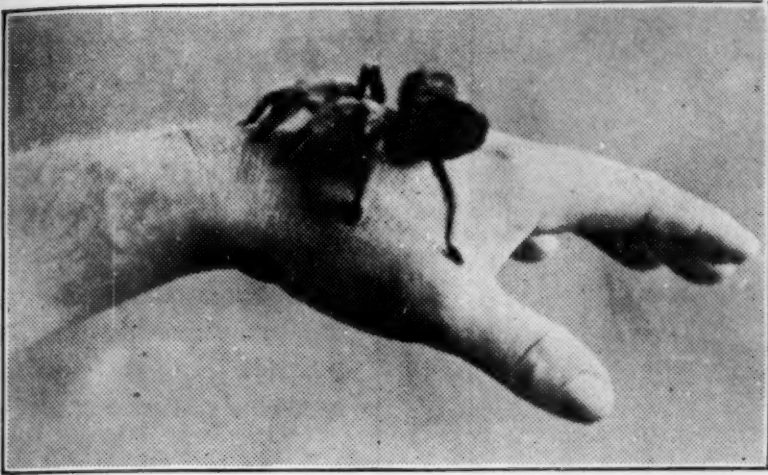
The rubbers should be capable of standing 1,000 revolutions. This will insure a long flight. It would not be wise to turn 8 strands of rubber more than 1,000 turns, but if the model is lightly made, it may fly with seven strands, and these may be turned up more than the thicker bunch. Experiment with your model to get the greatest duration and distance. By doing so you will learn that when a model is light it will fly with less rubber than a heavy one. Less rubber may be turned up for more revolutions. Thus lightness works two ways to make long flights.

If you have not had a hand drill for winding the model you will have found that winding by hand occupies quite some time. Any sport can be improved by reducing the irksome work and using the time saved for more enjoyment.

Therefore in the next article directions will be given for making a geared winder which will be an improvement over hand methods and even be more efficient than the drill, because it will wind both motors at the same time. It will be made out of an egg beater, so procure one on your way home from the flying field. Get one which has the beater shafts well secured in the frame, and preferably has the big driving gear running between the two smaller gears.

Science News-Letter, August 27, 1927





Not so dangerous as it looks. Though the capable jaws of this native tarantula of the southwest will draw blood, the bite is comparatively harmless. This specimen has been living as a pampered pet in the Division of Insects in the National Museum for over three years

### Relief for the Stung

(Continued from page 130)

more susceptible to the poison of bees and wasps than others, and it is among this group that cases of collapse and death from stings occur.

### Beware of Caterpillars

No one needs to be warned about bee stings, but many caterpillars of the woolly bear category have an irritating effect on the skin, somewhat like nettles. The greyish caterpillar of the widely distributed tussock moth, with tufts of brown whiskers at either end and rows of red spots along its back, is a common offender, while the saddleback caterpillar, well-known to the South, is really seriously poisonous.

The caterpillar of the brown-tail moth that has spread havoc among the shade trees of New England has spines that are very irritating and has caused much annoyance to people in infested sections by getting on laundry hung out to dry. Shirts full of caterpillar hairs have given the eradication campaign as much impetus as desire to save the shade trees, it is said.

A two per cent. solution of sodium bicarbonate followed up with a ten per cent. ichthyol ointment will help relieve the irritation the fuzzy crawlers leave in their wake.

### Family History of the Chigger

One of the greatest little killjoys in all out-of-doors is the chigger. Dr. H. E. Ewing, of the U. S. National Museum, has laid bare several chapters in the life of this pestiferous little beast whose habits, all but its bite, remained for a long time a mystery to science.

What eventually proved to be the adult form of the chigger was known to entomologists as Trombicula, a harvest mite that lives in the soil. Finding this mite frequently associated with the tiny red larval form familiar to the picnicker in the woods, Dr. Ewing suspected its identity. He collected a number of Trombiculae and bred them in captivity. The resulting young were the characteristic red chigger about one-fiftieth the size of the adult mite, which is orange red in color and about as large as the head of a pin.

From the chigger stage of life the insect passes first into the nymph stage for a few weeks and then to the adult stage. The adult lives about ten months and is almost amphibious, requiring a great deal of moisture. The indications are that there is but one generation a year, and if the adults can be exterminated by depriving them of moisture, the chigger may be checked. Another

possibility of control is getting rid of the rabbits that are the principal animals that harbor these pesky little nuisances. Snakes are also known to carry chiggers and ought to excite the envy of unfortunate campers for when they periodically shed their skins they shed the chiggers with them.

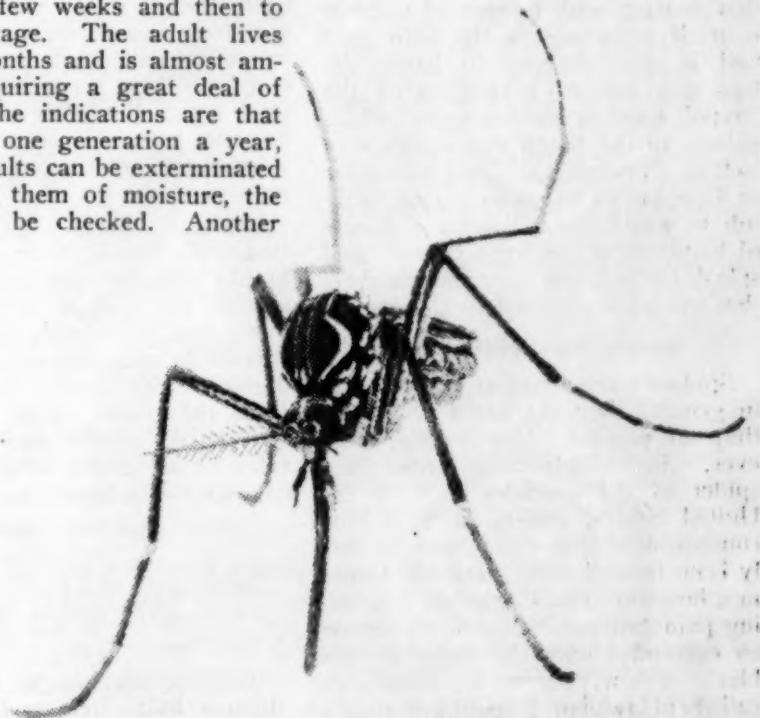
According to Dr. Ewing's observations on the chiggers that he kept under observation on his own arm, they do not bore into the skin as is popularly believed, and stay "holed up" under one's epidermis until they decay. They take up a good position for sucking at the base of a hair and attach their mouth parts there. They are not capable of actually piercing the human skin in the entomologist's estimation.

The American species has been exonerated from the charge of being a disease carrier. A Japanese variety, however, is responsible for the spread of flood fever, a disease somewhat similar to the Rocky Mountain spotted fever of our own West.

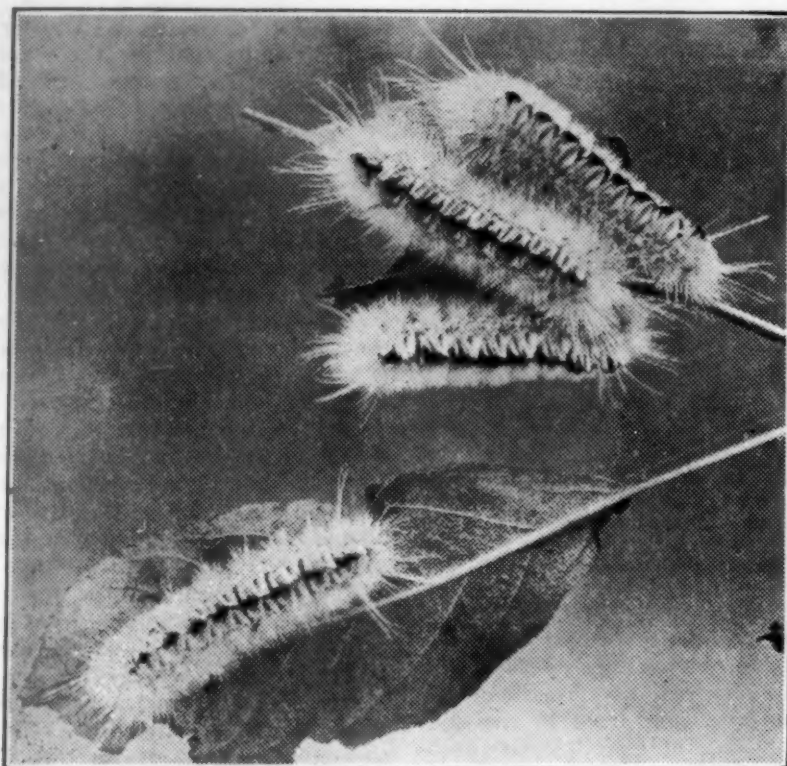
Flowers of sulphur dusted in the stockings and underwear is the best way of keeping chiggers off while applications of benzene will make them loosen up from their entrenched position at the base of the hair follicles, after they have made their presence known.

A salt bath or a bath with strong soap immediately after coming in

(Just turn the page)



A close up of an old friend. Note the formidable proportions of the beak the mosquito uses to puncture your epidermis.—(U. S. Bureau of Entomology)



Don't let fuzzy fellows like these come too near. Many caterpillars of this family cause great discomfort with their poison hairs.—(Courtesy of the U. S. Dept. of Agriculture)

### Relief for the Stung

(Continued from page 135)

from out-of-doors will help wash them off while drug stores sell anti-chigger preparations that purport to check the intense burning that follows a severe encounter with the minute pests. People who find that dusting with flowers of sulphur is itself irritating to the skin may find it advantageous to bathe the legs and feet in a solution of the "hypo" used in photography, which golfers in the South say works very well as a preventive. They run three or four inches of water in the bathtub in which they dissolve a couple of handfuls of the hypo crystals and splash the solution over the members that are most exposed to the enemy.

### Serum for Spider Bites

Spiders have a bad reputation, but in general they are not so black as they are painted. One species, however, the widely-famed hourglass spider of the southern half of the United States, causes such serious consequences that cases have recently been treated with a specific serum in a hospital in Los Angeles. Agonizing pain and sometimes death follow an encounter with the fangs of this black widow, as it is sometimes called in reference to the female's pleasant conjugal habit of devouring her mate.

Dr. Emil Bogen, formerly of Los Angeles, who has made an extended study of this problem, states that experiments showing that one attack conferred immunity, suggested the possibility of using serum made from the blood of patients recovering from the black widow's bite. Convalescent serum was accordingly tried out and found to be effective in reducing the acute pain. A limited supply is kept on hand in the hospital where the work was done and its use promises features of considerable interest along the lines of immunization.

Research workers at Sao Paula Institute, Brazil, have developed a highly effective anti-serum for two species of spiders with poisonous bites, but fortunately for us these species do not come within the boundaries of the United States. Aside from the black widow the rest of our native spiders and such tarantulas as are found in the South are comparatively harmless.

Science News-Letter, August 27, 1927

Seedlings of California's giant redwood trees are to be planted in Virginia.

After a conquest in Macedonia, a Roman leader returned with 250 wagon loads of Greek paintings and statues.

# Tune In

## On Our Science Radio Talks!

In cooperation with leading broadcasting stations, Science Service presents a weekly radio talk on "SCIENCE NEWS OF THE WEEK"

These are given from the following stations:

- KOAC Oregon Agricultural College, Corvallis, Oregon.
- KUOK University of Arkansas, Fayetteville, Ark.
- WABC Atlantic Broadcasting Corp., New York, N. Y.
- WEAO Ohio State University, Columbus, Ohio.
- WBAO James Millikan University, Decatur, Ill.
- WBET Boston Evening Transcript, Boston, Mass.
- WCAD St. Lawrence Univ., Canton, N. Y.
- WDBO Rollins College, Winter Park, Fla.
- WDOD Chattanooga Radio Company, Chattanooga, Tenn.
- WEBW Beloit College, Beloit, Wisc.
- WGR Federal Radio Corp., Buffalo, N. Y.
- WHAS The Courier-Journal, Louisville, Ky.
- WHAZ Rennselaer Poly. Inst., Troy, N. Y.
- WMAL The Washington Radio Forum, Washington, D. C.
- WMAQ Chicago Daily News, Chicago, Ill.
- WOO John Wanamaker, Philadelphia, Pa.
- WRAV Antioch College, Yellow Springs, Ohio.

Watch the program of the station nearest you to see what time these talks are given. If no station near you gives them, write us, suggesting any station that you think might give them.

**SCIENCE SERVICE**  
21st & B Sts.  
Washington, D. C.



## PSYCHOLOGY

## Adults Learn Better

A man or woman under 50 years of age should seldom be discouraged from trying to learn anything which he or she really needs to learn by the fear of being too old, Dr. E. L. Thorndike, professor of educational psychology at Columbia University, declared at a meeting of the American Association for Adult Education. To a lesser degree, this is true after 50 years also, he added.

Dr. Thorndike presented results of experiments in which persons 35 years and over, averaging 42 years, were compared with persons 20 and 24 years old, averaging 22, in their ability to learn acts of skill and to acquire various kinds of knowledge.

In learning Esperanto, an artificial language constructed on logical principles, the older group learned about five-sixths as fast as the younger. Both groups learned more rapidly than children.

In learning reading, spelling, arithmetic, and other elementary school

(Just turn the page)

## ORNITHOLOGY

## Yellowstone Given Eagle

A large golden eagle, a bird even more fine and majestic than the bald eagle shown on the American coat-of-arms, has been presented to Yellowstone National Park by Harry E. Boughers, of Fort Wayne, Ind. Park Naturalist E. J. Sawyer tells the circumstances of the gift. Mr. Boughers found the eagle with its wing injured, apparently by gunshot, and kept it several weeks until its wound was healed. Anxious that the bird should not be exposed to any more pot shots in a densely populated region, he sent it out to the park at his own expense, requesting that it be kept and fed well for a short time and then released to find its own home in the mountains.

Yellowstone National Park has frequently figured as the source of donations of such animals as bison and elk, but this is one of the few cases on record where the process has been reversed. This is at least partly due to the fact that the National Park Service has steadily adhered to a policy of refusing to introduce animals or plants not native to the region. Inasmuch as golden eagles do live in the mountains surrounding Yellowstone Park, Mr. Boughers' gift was considered appropriate and very welcome.

Science News-Letter, August 27, 1927

## EVOLUTION

## Worse Than Monkeys

Since Darwin's day, full many a jape  
About our ancestor the ape  
Has filled the comic paper's pages  
And doubtless will for many ages.

But having got *that* story told  
The scientists become more bold  
We hear from Doctor Elliot Smith  
A tale most eloquent, the pith  
Of which is just that he and you  
Are both descended from a shrew:  
A nasty tempered little shrew!  
Worse than an ape, if that be true.  
And then from Africa there looms  
This theory of Robert Broom's,  
Whereby our ancestry is led  
Back to the ancient Karroo bed  
To primitive reptilian fonts  
In horrid old Theriodonts!

It's bad enough to have an ape  
For ancestor, but you could do  
Much worse, for now we have a shrew  
To head our family tree, or place  
A crawling reptile for our race  
To worship as our ancestor  
Our deified progenitor!

But now the scientists with pep  
Have taken still another step  
And Doctor Gregory insists  
We place on our ancestral lists  
Some ancient fishes primitive  
That in primeval seas did live.  
A clumsy, awkward, slimy fish,  
Not fit to serve upon a dish!

Then Doctor Stensio will trace  
The fishes to an earlier race,  
Ostracoderms with names so shocking  
You can't pronounce them without  
choking.

And next the scientist will find  
The evolution of our kind  
Goes back to arthropod or worm  
That in the Cambrian slime would  
squirm.

Oh must this be, my learned friend?  
My geneology to end  
In writhing worms—whose better fate  
Is use as Presidential bait?

Oh come! let's stop it at the ape  
At least he's got some human shape.

—W. D. Matthew.

Science News-Letter, August 27, 1927

Every civilization acts as a poison  
upon those who have not been properly  
inoculated; it would act that way  
even were it perfectly pure and did  
not contain (as it always does) evil  
elements.

—George Sarton.

Science News-Letter, August 27, 1927

## GEOLOGY

## Oil Overproduction

Cheap gasoline is pleasing to the man who owns a car, but it is a menace when it means, as it does at present, vast overproduction and economic waste of a natural resource upon which a large part of our industrial life, national defense and domestic comfort is dependent.

The United States produces more than 70 per cent. of the world's supply of crude oil and consumes about the same amount. The production is now at the rate of some 2,486,000 barrels of crude oil daily, or nearly a gallon to every person in this country. Each year the production has been growing until the point has been reached where the entire world is concerned over the exploitation of this valuable and irreplaceable natural resource.

According to the Federal Oil Conservation Board, "the total present reserves in pumping and flowing wells in proven sands has been estimated theoretically as but six years' supply" at the present rate of production and consumption. An oilless future is not necessarily prophesied at the end of this time, for all the oil could not be extracted by then, since the gas pressure which expels the oil is diminished with time. The known supply of oil would gradually grow less and

(Just turn the page)

## HYGIENE

## Water Available Abroad

Tourists from the land of the free and the dry are assured of receiving pure water to drink when they are in France this summer, if they prefer it. Fearful lest the lack of a purified supply of "l'eau potable" should interfere with the influx of American dollars from the pockets of participants in the great summer exodus now embarked on the high seas, many resorts and watering places on the coast have put in plants to render water fit for drinking.

Electricity is the favored agent for sterilizing the water in most localities, especially in those sections where neighboring waterfalls are a cheap source of power. The typhoid bacilli and other water-borne germs are not electrocuted but are done to death by the liberation of ozone, a super-powerful form of oxygen. The method is said to be so efficient and cheap that the city of Paris is considering the feasibility of introducing the system.

Science News-Letter, August 27, 1927

## Oil Overproduction

(Continued from page 137)

less. New fields may at any time be discovered, of course, except in certain areas where this would be geologically impossible. However, discoveries of new fields cannot be counted upon to save the situation.

The fact remains that the overproduction in oil is a menace because it is unnecessarily depleting an important natural resource and dissipating gas pressure. This dissipation of gas pressure, says the Federal Oil Conservation Board, "leaves in the upper sands oil which well might have been recovered to an amount equal to that actually taken out under the rush methods of competitive drilling and producing."

Science News-Letter, August 27, 1927

The brown rat, which came from Europe about 1775, now inhabits every state of the Union.

Glaciers that creep down the sides of Mount Rainier are slowly grinding the mountain away.

By using modern machinery, one man can dust with poison powder 100 acres of cotton in a night.

## BINDER COVERS FOR SCIENCE NEWS-LETTER

Many subscribers have expressed a desire for a convenient binder in which to file their copies of the Science News-Letter. We therefore have prepared an attractive and durable loose-leaf binder-cover of gray leather-like stock, printed in dark green and complete with fasteners. Each binder-cover will hold one volume (six months or 26 issues).

To facilitate punching the issues of the Science News-Letter to fit this binder-cover, a pattern showing where holes should be placed appears each week on the back cover page.

To obtain a binder-cover, send 20 cents in stamps (make them 2s, please), together with your name and address (please print) to

**SCIENCE SERVICE**  
21st and B Sts.  
Washington, D. C.

## MEMORANDUM

This blank space serves a dual purpose. It allows you to clip out the article on the reverse of this page without destroying any other article. It can also be used for notes and the recording of your own observations.

## Adults Learn Better

(Continued from page 137)

subjects, adults of 42 progressed about five-sixths as fast as the adults of 22. Both groups probably learned faster than they would have learned the same things as children at the age of 12, Dr. Thorndike said, for they learned more per hour of study than children comparable to them in brightness are able to learn.

"Extensive experiments with adults learning algebra, science, foreign languages, and the like in evening classes, and with adults learning shorthand and typewriting in secretarial schools, support the general conclusion that ability to learn rises until about 20," he stated. "Then, perhaps after a stationary period of some years, learning ability slowly declines. The decline is very slow, however, roughly about one per cent. per year."

The chief reason why adults seldom learn a new language or a new trade is not the lack of ability, but the lack of opportunity or desire, Dr. Thorndike concluded.

Science News-Letter, August 27, 1927

Deer cause considerable damage to orchards in New England.

Deep under the sea, volcanoes are undoubtedly producing lava.

Synthetic wood can now be made from chips of sawmill waste.

The National Museum at Washington has 10 million specimens.

Japanese peppermint is being raised in this country as a valuable source of menthol.

*Blue Band*  
**VELVET  
PENCILS**

Used by millions

5¢

At all dealers



*The Lead* has special strength with perfect smoothness and softness, is very black, yet it is readily erased.

*The Rubber* is of the famous Venus quality.

*The Costly Wood* is a specially selected cedar, treated to give best satisfaction in sharpening.

*The Walnut Finish* and *Blue Band* make it easily recognized.

Write for Sample

AMERICAN LEAD PENCIL CO., 218 FIFTH AVE., N.Y.

Makers of the famous VENUS Pencils

*The Lead* has special strength with perfect smoothness and softness, is very black, yet it is readily erased.

*The Rubber* is of the famous Venus quality.

*The Costly Wood* is a specially selected cedar, treated to give best satisfaction in sharpening.

*The Walnut Finish* and *Blue Band* make it easily recognized.

Write for Sample

AMERICAN LEAD PENCIL CO., 218 FIFTH AVE., N.Y.

Makers of the famous VENUS Pencils



## NATURE RAMBLINGS

By FRANK THONE



### Breaking Up the Rookery

The passing of summer brings with it the massing of bird populations preparatory to their flights southward. Most of our small songsters gather unobtrusively and make their departure so quietly that we take no notice of it until we realize, with a pang of regret, that they are gone.

But there are some birds, attractive and useful enough when they come a few at a time, that make themselves intolerable nuisances when they begin their late summer parliaments in the trees. Such species as blackbirds and martins form flocks of thousands, make whole afternoons hideous with their chatter, and in general inspire a most illegal itching after a shotgun.

A tale is told of a community in Arkansas that got rid of a troublesome treeful of martins, with no trouble and only small expense, and had a gaudy show at the same time. Being informed that it was illegal to shoot the birds, they first tried the effect of streams of water from the nozzles of the local fire department. That broke up the assembly for the time being, but as soon as the wet feathers had been dried out the birds came back again.

Then some one remembered that some of the merchants had stocks of fireworks left unsold on the previous Fourth of July. They brought out all the Roman candles obtainable. Volunteers were not lacking, and soon a flaring barrage of fire-balls was whizzing into the treetop, while owners of pistols and shotguns blazed away with volley after volley of blank cartridges.

The only casualties were a few singed feathers among the birds, and perhaps a few skin burns among the townspeople. But the morale of the martin army was wrecked. They fled in disorder from their leafy stronghold, and the next night chose for their roost a grove in a less volcanic neighborhood.

Science News-Letter, August 27, 1927

## Cats Live in Gray World

This colorful world of green grass and trees, red meat, brownish gray mice, and yellow dogs is all just gray to cats. At least, so says Prof. F. M. Gregg, of Nebraska Wesleyan University, who has been experimenting with the color sense of night prowling animals. Dogs and raccoons also lack color perception, he finds.

In his experiments the animals were taught to recognize various color combinations. They learned that when certain colors were shown they could come up and expect to be fed. When shades of gray corresponding in brightness to the different colors were substituted for the brilliant rainbow hues, the animals apparently noted no change in the dinner signals. The dog, a fox terrier, was quickest to learn, the cat next, and the raccoon the slowest of all.

Science News-Letter, August 27, 1927

## Source of Aztec "Jade" Found

The mystery of the source of the jade-like stone used by the Mayas and ancient Mexicans for making images and ornaments has been solved by the discovery of a mass of the rock at Zimapan in the State of Hidalgo. The discoverers are Prof. Ramon Mena, chief of the department of archaeology of the Mexican National Museum, and Engineer De La Cerda.

The abundance of objects carved out of this stone, and the absence of any known deposits of jade in Mexico, was long taken as evidence of an Asiatic origin of the Indian tribes of that region, and of a long-continued trans-Pacific traffic. However, it was discovered years ago that the stone is not a true oriental jade, but a mineral known technically as nephrite, belonging to the class of stones known as jadeite, resembling jade but not identical with it. The parent mass of this jadeite was not known, and the only unworked pieces so far brought in have been rounded pebbles found in water-courses.

Science News-Letter, August 27, 1927

I think the name of leisure has come to cover three totally different things. The first is being allowed to do something. The second is being allowed to do anything. And the third (and perhaps most rare and precious) is being allowed to do nothing—G. K. Chesterton, in *The Illustrated London News*.

Science News-Letter, August 27, 1927

## EXPLORATION—GEOGRAPHY

### Entering Forbidden City

Quotation from MY JOURNEY TO LHASA—Alexandra David-Neel—Harper.

A miracle seemed to protect our entrance into Lhasa.

No sooner had we landed than the air, till then so calm, became agitated. All of a sudden a furious storm arose, lifting clouds of dust high into the sky. . . .

Who would see us coming? Who could know us? An immense yellow curtain of whirling sand was spread before the Potala, blinding its guests, hiding from them Lhasa, the roads leading to it, and those who walked upon them. I interpreted it as a symbol promising me complete security, and the future justified my interpretation. For two months I was to wander freely in the lamaist Rome, and none to suspect that, for the first time in history, a foreign woman was beholding the Forbidden City.

At that time of the year, a large number of people from all the provinces of Tibet congregate in the capital to enjoy the various festivals and merry-makings, which take place there. The inns are full. All those who can vacate a room or any shelter rent them. Travellers sleep in the stables and camp in the court-yards.

I could have gone from door to door for hours, in quest of a lodging, without any other result than showing myself to a number of householders of both sexes and being compelled to answer a lot of questions. Fortunately, I was spared the trouble and danger of this.

The storm abated as suddenly as it had arisen. Newcomers, unacquainted with the city, we stood a little at a loss amid the crowd without knowing where to go. Unexpected help came again to me in the shape of a young woman.

"You want a room, Mother?" she said. "You come from very far. You must be exceedingly tired. Follow me. I know a place where you will be all right." . . .

We followed her like sheep, a little bewildered by the noise and traffic after months spent in the solitudes, and perhaps still more bewildered by our good luck. She led us outside the town to a place from which one enjoyed an extended view of most beautiful scenery, including the Potala. This detail struck me particularly; for all along the road I had wanted to get a lodging from which I could see it.

Science News-Letter, August 27, 1927

# Science Service Books

Buy books through SCIENCE SERVICE. We have cooperated with leading book publishers, and have taken part in editing the books listed below. Just order through us—we will give you prompt and efficient service.

## CHATS ON SCIENCE

By Edwin E. Slosson.  
New York: The Century Company. 1924.  
\$2.00.

## SCIENCE REMAKING THE WORLD

Edited by Otis W. Caldwell and Edwin E. Slosson.  
New York: Doubleday, Page & Co. 1923.  
\$2.50 and \$1.00.

## KEEPING UP WITH SCIENCE

Edited by Edwin E. Slosson.  
New York: Harcourt, Brace & Co. 1924.  
\$2.50.

## WHY THE WEATHER?

By C. F. Brooks.  
New York: Harcourt, Brace & Company. 1924.  
\$2.00.

## SOIL AND CIVILIZATION

By Milton Whitney. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1925.  
\$3.00.

## CHEMISTRY IN MODERN LIFE

By Svante Arrhenius, translated and revised by  
C. S. Leonard. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1925.  
\$3.00.

## DWELLERS OF THE SEA AND SHORE

By William Crowder.  
Young People's Shelf of Science. Edited by E. E. Slosson.  
New York: The Macmillan Co. 1923.  
\$2.25.

## ANIMALS OF LAND AND SEA

By Austin Clark. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1925.  
\$3.00.

## THE EARTH AND THE STARS

By C. G. Abbot. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1925.  
\$3.00.

## MYSTERY OF MIND

By Leonard Troland. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1926.  
\$3.00.

## FOUNDATIONS OF THE UNIVERSE

By M. Luckiesh. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1925.  
\$3.00.

## CHEMISTRY IN THE WORLD'S WORK

By H. E. Howe. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1926.  
\$3.00.

## EVERYDAY MYSTERIES

By Charles Greeley Abbot.  
Young People's Shelf of Science. Edited by E. E. Slosson.  
New York: The Macmillan Co. 1923.  
\$2.00.

## STORIES IN STONE

By Willis T. Lee. Library of Modern Sciences.  
New York: D. Van Nostrand Co. 1926.  
\$3.00.

Any book listed above—or any book in print—will be sent to any address on receipt of list price plus postage.

## SCIENCE SERVICE

21st and B Streets, N. W.

Washington, D. C.



## First Glances at New Books

**THE END OF A WORLD**—Claude Anet—*Knopf*—(\$3). The artistry of the Reindeer Age furnishes background for this novel of the last cycle of the Crô-Magnon period. A very interesting attempt to reconstruct the life of that remote period, based on material for which the author acknowledges indebtedness to Abbé Breuil and other archaeologists.

Science News-Letter, August 27, 1927

**LOCAL IMMUNIZATION**—A. Besredka—Translated by Harry Plotz—*Williams and Wilkins* (\$3.50). Dr. Besredka's new theories of local immunization and accounts of the experiments and cases with which he backs up his arguments here appear in English for the first time.

Science News-Letter, August 27, 1927

**FOSSIL FOOTPRINTS FROM THE GRAND CANYON: SECOND CONTRIBUTION**—Charles W. Gilmore—*Smithsonian Misc. Publ. v. 80, no. 3*. Full scientific descriptions of the most conspicuously placed fossil footprints in the world, with many text figures and 21 excellent photographic plates.

Science News-Letter, August 27, 1927

**REPTILES OF THE WORLD**—Raymond L. Ditmars—*Macmillan* (\$4). Exceptionally fine illustrations of many species of reptiles hitherto unphotographed make this popular account of unique value.

Science News-Letter, August 27, 1927

**AN EXPERIMENTAL INVESTIGATION OF THE RELATION OF THE CODLING MOTH TO WEATHER AND CLIMATE**—V. E. Shelford; and **A STUDY OF THE CATALASE CONTENT OF CODLING MOTH LARVAE**—C. S. Spooner—*Ill. State Nat. Hist. Survey v. XVI, articles V and VI*. Two closely quantitative inquiries into the physiology and ecology of one of our worst insect pests.

Science News-Letter, August 27, 1927

**THE FARM**—Eugene Davenport—*Macmillan* (\$3.50). A book that deserves a parking place between the radio and the telephone in every farmhouse. Gives a comprehensive account of the agriculture's natural resources and tells what the farmer must do to obtain maximum yields.

Science News-Letter, August 27, 1927

**LEATHER SHOES, SELECTION AND CARE**—Farmers' Bulletin No. 1523—*Government Printing Office* (5c.) Valuable advice on how to pick out and preserve shoes.

Science News-Letter, August 27, 1927

**THE SOCIAL BASIS OF CONSCIOUSNESS**—Trigant Burrow—*Harcourt, Brace* (\$4). An organic and social theory of psychoanalysis is presented by Dr. Burrow, who finds the personalistic basis on which analysis ordinarily rests too limited to meet the needs of human life. Those who have been repelled by Freud's idiosyncracies will be led to see a wider expansion of psychoanalysis from the philosophic standpoint.

Science News-Letter, August 27, 1927

**LIFE HISTORIES OF NORTH AMERICAN MARSH BIRDS**—Arthur Cleveland Bent—U. S. National Museum Bulletin No. 135—*Government Printing Office*. Exceptionally fine photographs make this valuable account of native marsh birds of interest to all nature lovers as well as ornithologists.

Science News-Letter, August 27, 1927

**A MANUAL OF INDIVIDUAL MENTAL TESTS AND TESTING**—Augusta F. Bronner, William Healy, Gladys M. Lowe, Myra E. Shimberg—*Little, Brown* (\$3.50). An extremely complete and useful collection of test material, with a practical discussion on methods and procedures.

Science News-Letter, August 27, 1927

**CANCER CONTROL**—*Surgical Pub. Co.* The full report of the international symposium held last September at Lake Mohonk under the auspices of the American Society for the Control of Cancer. It forms a complete survey of our present state of knowledge of this dreaded disease.

Science News-Letter, August 27, 1927

**THE ELEMENTS OF RADIO-COMMUNICATION**—O. F. Brown—*Oxford Univ.* An up-to-date treatise on the more important phases of radio telegraphy and telephony, including chapters on short wave transmission, "beam" transmission, and static.

Science News-Letter, August 27, 1927

**TITANIUM**—William M. Thornton, Jr.—*Chemical Catalog*. This latest volume in the American Chemical Society's series of monographs is probably the most complete work in English on the subject of titanium. Everyone who has, or expects to have, anything to do with titanium should have this book in his library.

Science News-Letter, August 27, 1927

**SOIL MINERALOGY**—Frederick A. Burt—*Van Nostrand* (\$1.50). An account of the minerals that are found in soil and how they affect it.

Science News-Letter, August 27, 1927

**INTRODUCTION TO ORGANIC CHEMISTRY**—Roger J. Williams—*Van Nostrand* (\$3.50). "The desire to rationalize more fully the subject of organic chemistry is the basic reason for the existence of this text book," says its author. To do this he makes frequent use of the connection between organic chemistry and the other branches of the science, and tries to show the student how the facts which he relates are true.

Science News-Letter, August 27, 1927

**THE DE LAMAR LECTURES 1925-1926** of the School of Hygiene and Public Health, John Hopkins University—Thirteen papers—*Williams and Wilkins* (\$5). These lectures concern themselves with modern problems and theories—for example, sun treatment for tuberculosis, industrial poisons, goiter prevention, constitutional types in relation to disease. The subjects are handled in specific fashion by well-known authorities.

Science News-Letter, August 27, 1927

**PHOSPHORIC ACID, PHOSPHATES, AND PHOSPHATIC FERTILIZERS**—Wm. H. Waggaman assisted by Henry W. Easterwood—*Chemical Catalog Co.* (\$7.50). An invaluable reference book bringing together the present knowledge about these important compounds.

Science News-Letter, August 27, 1927

**ATOMIC THEORY**—Arthur Haas—*Van Nostrand* (\$3.50). With the great developments in atomic theory, it is hard to keep abreast of the latest facts and theories, but in this new book by the distinguished Viennese physicist, the latest ideas are clearly and adequately stated.

Science News-Letter, August 27, 1927

**ISOSTASY**—William Bowie—*Dutton*. The distinguished chief of the Division of Geodesy of the U. S. Coast and Geodetic Survey contributes a learned treatise on the modern views of the earth's crust.

Science News-Letter, August 27, 1927

**APPLICATION OF THE ALGEBRAIC ABERRATION EQUATIONS TO OPTICAL DESIGN**—I. C. Gardner—*U. S. Bur. Standards* (\$4.5). A valuable technological paper.

Science News-Letter, August 27, 1927

**COMPARISON OF AMERICAN, BRITISH AND GERMAN STANDARDS FOR METAL FITS**—Irvin H. Fullmer—*U. S. Bur. Standards* (\$1.10). Of value in shop and laboratory practice.

Science News-Letter, August 27, 1927

# How to Use Key-Word Feature of News-Letter

In order to aid in catching the items that concern you and to facilitate clipping and filing, a key word in small capitals has been printed on the right of the line above each article. The key words used fit into any system of classification, whether it be a straight alphabetical file, a system of your own devising, the Library of Congress classification or the Dewey system.

Note that you can slip out any article without fear of damaging another article in which you might be interested, since editorial matter printed on the right-hand pages is backed by advertising, standing matter or a continuation of the article on the other side.

## Library of Congress Classification

The classification of the Library of Congress has come into common use in the libraries of the country owing to the publication of the Government of the card index of all new books. We print below a list of the subject titles which are most used in the SCIENCE NEWS-LETTER. The full scheme of classification is contained in "Outline Scheme of Classes," issued by the Library of Congress.

A	General Works. Polygraphy.
B	Philosophy.
BF	Psychology.
G	Geography, voyages, travel.
GA	Mathematical and astronomical geography.
GB	Physical geography.
GC	Oceanology and oceanography.
GF	Anthropogeography.
GN	Anthropology. Somatology. Ethnology. Ethnography. Prehistoric archaeology.
GR	Folklore.
GT	Manners and customs.
GV	Sports and amusements. Games.
HC	Economic history and conditions. National production.
HD	Economic history. Agriculture and Industries.
HE	Transportation and communication.
HF	Commerce.
HM	Sociology. General.
HQ	Family. Marriage. Woman.
HV	Social pathology.
L	Education.
M	Music.
N	Fine arts.
P	Philology and linguistics.
Q	Science. General.
QA	Mathematics.
QB	Astronomy.
QC	Physics.
QD	Chemistry.
QE	Geology.
QH	Natural history.
QK	Botany.
QL	Zoology.
QM	Human anatomy.
QP	Physiology.
QR	Bacteriology.
R	Medicine. General.
S	Agriculture. General.

SB	Field crops. Horticulture. Landscape gardening. Pests and plant diseases.
SD	Forestry.
SF	Animal culture. Veterinary medicine.
SH	Fish culture and fisheries.
SK	Hunting. Game protection.
T	Technology. General.
TA	Engineering. General.
TC	Hydraulic engineering.
TD	Sanitary and municipal engineering.
TE	Roads and pavements.
TF	Railroads.
TG	Bridges and roofs.
TH	Building construction.
TJ	Mechanical engineering.
TK	Electrical engineering and industries.
TL	Motor vehicles. Cycles. Aeronautics.
TN	Mineral industries. Mining and Metallurgy.
TP	Chemical technology.
TR	Photography.
TS	Manufactures.
TT	Trades.
TX	Domestic science.
U	Military science. General.
V	Naval science. General.

## Dewey Classification

The main divisions of the Dewey Decimal Classification, used in many libraries and by many individuals, is given below for the convenience of those who wish to use this system:

000	GENERAL WORKS—
010	Bibliography
020	Library economy
030	General encyclopedias
040	General collected essays
050	General periodicals
060	General societies
070	Newspapers
080	Special libraries. Polygraphy.
090	Book rarities
100	PHILOSOPHY—
110	Metaphysics
120	Special metaphysical topics
130	Mind and body
140	Philosophical systems
150	Mental faculties. Psychology
160	Logic
170	Ethics
180	Ancient philosophers
190	Modern philosophers
200	RELIGION—
210	Natural theology
220	Bible
230	Doctrinal. Dogmatics. Theology
240	Devotional. Practical
250	Homiletic. Pastoral. Parochial
260	Church. Institutions. Work
270	Religious history
280	Christian churches and sects
290	Ethnic. Non-Christian
300	SOCIOLOGY—
310	Statistics
320	Political science
330	Political economy
340	Law
350	Administration
360	Associations. Institutions
370	Education
380	Commerce. Communication
390	Customs. Costumes. Folklore
400	PHILOLOGY—
410	Comparative
420	English
430	German
440	French

450	Italian
460	Spanish
470	Latin
480	Greek
490	Minor Languages
500	NATURAL SCIENCE—
510	Mathematics
520	Astronomy
530	Physics
540	Chemistry
550	Geology
560	Paleontology
570	Biology
580	Botany
590	Zoology
600	USEFUL ARTS—
610	Medicine
620	Engineering
630	Agriculture
640	Domestic economy
650	Communication. Commerce
660	Chemical technology
670	Manufactures
680	Mechanic trades
690	Building
700	FINE ARTS—
710	Landscape gardening
720	Architecture
730	Sculpture
740	Drawing. Decoration. Design
750	Painting
760	Engraving
770	Photography
780	Music
790	Amusement
800	LITERATURE—
810	American
820	English
830	German
840	French
850	Italian
860	Spanish
870	Latin
880	Greek
890	Minor languages
900	HISTORY—
910	Geography and travels
920	Biography
930	Ancient history
	Modern
940	Europe
950	Asia
960	Africa
970	North America
980	South America
990	Oceania and polar regions

## About Buying Books—

We know how much trouble it sometimes is to get the book that you want.

So if you want to add to your library any book reviewed or noted in the SCIENCE NEWS-LETTER, or any book in print—just remit to us the publisher's price and we shall rush the book to you postage prepaid.

Don't hesitate to consult with us on your book problems.

**SCIENCE SERVICE**  
21st and B Sts.  
Washington, D. C.



## Anniversaries of Science

**September 3, 1752**—England adopted the Gregorian calendar, making this date September 14, and at the same time changed New Year's Day to January 1 from March 25, the date of the spring equinox.

Science News-Letter, August 27, 1927

**September 4, 1882**—The first electric lighting service was inaugurated.

A notable group of men gathered at the station to see the switches thrown; others assembled at various buildings where the new lights had been installed, and crowds of the curious congregated around the show windows of the few shops on Nassau street that had been equipped. The appointed hour came—the switches were thrown and the lights went on.

The lighting company at the end of its first month's service was supplying fifty-nine customers; the New York Edison Company now serves 315,000 customers in Manhattan and the Bronx. The cost of electricity was then 1 cent for a 16-candlepower illumination for one hour; today 150 candlepower hours can be had for 1 cent. Forty years ago there were 1,284 lamps supplied from a station equipped with six generators of 125 horsepower each. Today the electrical load is equal to more than 21,500,000 lamps and the great Waterside stations of the company are rated at more than half a million horsepower.

—From a newspaper account of the celebration of the 40th anniversary of electric lighting service, 1922.

Science News-Letter, August 27, 1927

**September 6, 1766**—Birth of John Dalton, the founder of the atomic theory.

In steam we recognize a perfectly elastic fluid, in water a perfect liquid, and in ice a complete solid. These observations have tacitly led to the conclusion which seems universally adopted, that all bodies of sensible magnitude, whether liquid or solid, are constituted of a vast number of extremely small particles, or atoms of matter bound together of a force of attraction, which is more or less powerful according to circumstances.

Whether the ultimate particles of a body, such as water, are all alike, that is, of the same figure, weight, etc., is a question of some importance. From what is known, we have no reason to apprehend a diversity in these particulars: if it does exist in water, it must equally exist in the elements constituting water, namely hydrogen and oxygen. Now it is scarcely possible to conceive how the aggregates of dissimilar particles should be so uniformly the same. If some of the particles of water were heavier than others, if a parcel of the liquid on any occasion were constituted principally of these heavier particles, it must be supposed to affect the specific gravity of the mass, a circumstance not known. Similar observations may be made on other substances. Therefore we may conclude that the ultimate particles of all homogenous bodies are perfectly alike in weight, figure, etc.

—Dalton: *A New System of Chemical Philosophy*.

Science News-Letter, August 27, 1927

**September 6, 1778**—Birth of Joseph Louis Gay-Lussac, the student of gases.

The attraction of the molecules in solids and liquids is, therefore, the cause which modified their special properties; and it appears that it is only when the attraction is entirely destroyed, as in gases, that bodies under similar conditions obey simple and regular laws. At least, it is my intention to make known some new properties in gases, the effects of which are regular, by showing that these substances combine amongst themselves in very simple proportions, and that the contraction of volume which they experience on combination also follows a regular law. I hope by this means to give a proof of an idea advanced by several very distinguished chemists—that we are perhaps not far removed from the time when we shall be able to submit the bulk of chemical phenomena to calculation.

—Gay-Lussac: *Memoir on the Combination of Gaseous Substances with Each Other*.

Science News-Letter, August 27, 1927

## PHYSICS

### Do You Know about Magnets?

Here is the answer to the problem propounded in the NEWS-LETTER last week. The problem, as quoted from A. S. E. Ackermann's "Scientific Problems and Paradoxes" (London: Old Westminster Press), was as follows:

"Given two straight bars of steel identical in every respect with the exception that one of them is magnetized, in what way can it be determined which piece is magnetized? No third article of any kind is to be used. You may not even balance one or both bars on a finger or finger nail, but you may hold the bars in your hands."

This is the way to do it:

"All you have to do is to hold one bar by one end, say, vertically in your left hand. Then take the other bar in your right hand and hold it in a horizontal position. Cause one end of the right hand bar to approach the middle of the vertical bar. If no pull is felt when the bars are nearly in contact then the bar in the right hand is the plain bar and the one in the left is the magnet. The reason is, of course, that the middle of a uniform bar magnet is not magnetic. If, on the other hand, the magnetized bar had been in the right hand, and the plain bar in the left, then on approach a pull would have been felt, and this would have been due to one of the poles of the bar in the right hand, for the bar in the left hand could not exert a pull at its middle, even if it too were a magnet!"

Science News-Letter, August 27, 1927

## ZOOLOGY

### Lizards Preserved in Paraffin

"If you think we're wax-works," he said, "you ought to pay, you know. Wax-works weren't made to be looked at for nothing. Nohow!"

"Contrariwise," added the one marked 'DEE', "if you think we're alive, you ought to speak."

Alice's dilemma would no doubt have been considerably increased had she encountered beings who looked very real and almost alive, and yet were indubitably wax-works, in the literal sense of being completely sculptured in wax. This is exactly what two workers at the American Museum of Natural History have done. G. K. Noble and M. E. Jaekle, confronted with the troublesome fact that frogs and toads and spotted salamanders and all manner of other interesting but non-fur-bearing creatures can not be successfully stuffed and mounted by the ordinary methods of taxidermists, have solved the problem by literally pickling them in solid paraffin wax. They first remove all trace of water from the specimens by appropriate chemical means, arrange the little animals in natural positions, and soak them for several days or weeks in melted paraffin, until every tissue is thoroughly impregnated and you cannot tell where the flesh ends and the paraffin begins.

By this method reptiles and amphibians can be worked into naturalistic museum groups and made as "alive" looking as birds and fur-bearing animals, instead of being pallid corpses pickled in jars of alcohol. They keep their natural colors indefinitely, except that sometimes their eyes need to be touched up with a little gold paint.

Science News-Letter, August 27, 1927

## EVOLUTION

### Abbott Mendel, Darwinian

(Extract from a letter of Gregor Mendel, written to Nægeli in 1873.)

"Gärtner was also convinced by his investigations that the masculine principle (as he expressed it) was always first affected. If that is really the case, then spontaneous hybridization in *Hieracium* should be due to a temporary disturbance, which, if it were repeated often or long continued, would finally result in the disappearance of the species involved, while one or the other fortunately organized hybrid descendant which was just suited to the existing telluric and cosmic conditions might succeed in taking up the struggle for existence with the unsuccessful and continue it through long periods until it also suffered a like fate."

Science News-Letter, August 27, 1927

## The Problem of Translation—

¶Science, probing the unknown universe, writes its findings in cryptic language. A stellar galaxy shining faintly in the heavens hides its splendor and its immensity in numbers and formulæ; a minute germ has thrust upon it a long Latin name. With the aid of such scientific shorthand and such technicalities, science pushes on to new discoveries and new heights.

¶Yet the facts and the methods of science must penetrate and permeate the whole fabric of civilization if the world is to become an increasingly better place to live in. The man in the street, the child in the school, the merchant in the counting house, the judge on the bench, the priest in the temple, all of those who make the world, must know, appreciate, understand and cherish the spirit of research and the power of thought.

¶To *translate* and *interpret* science—that is the function of SCIENCE SERVICE. The thrill and wonder of science reaches two million and a half newspaper readers through SCIENCE SERVICE news dispatches daily. Millions more read SCIENCE SERVICE's other newspaper articles, its magazine articles and its books.

¶And the *Science News-Letter* is established to serve the individual, the school and the library.

(The subscription price of the *Science News-Letter* is \$5.00 a year, 10c a week. For ten or more subscriptions sent to the same address the price is 6c a week.)

### Special Introductory Offer---13 weeks for \$1

Just clip a dollar bill to this blank, fill in your name and address and mail at our risk.

TO SCIENCE SERVICE, 21st and B Sts., Washington D. C.

Make me acquainted with the SCIENCE NEWS-LETTER for 13 weeks.  
Here is my dollar.

Name .....

Address .....

We suggest you tell this good news to a friend

Say you saw it advertised in the SCIENCE NEWS-LETTER